

## Writing Hints from John Geissman

An increasing number of GSA members lament the general deterioration in the quality and clarity of writing by earth scientists. They complain especially about the misuse and overuse of words and phrases that lead to vague, awkward, or cumbersome sentences and that require several readings before a meaning is derived. It may be only coincidental that the derived meaning is the one intended by the author. Insofar as it is one of the duties or prerogatives of editors to educate potential or eventual authors, when necessary or appropriate, we offer this commentary as some of our suggestions to authors. Our suggestions should not be regarded as GSA style; however, authors may find some red or purple ink in manuscripts that cross our desks if those authors misuse or overuse the words and phrases discussed below.

- We may say volcanics, clastics, metamorphics, metasediments, intrusives, and granitics to each other in the field, but it is quite improper grammatically to add an s to an adjective to make a plural noun. It may be tedious and repetitious to read, but it is correct and unambiguous to write volcanic rocks, clastic rocks, metasedimentary rocks, intrusive rocks, and granitic rocks.
- The terms lithologies and mineralogies should never be used until and unless we accept geologies, biologies, and zoologies. Replace them with rocks or rock types and minerals. The lithology of a study area and the mineralogy of a suite of rocks are quite correct phraseology.
- Many writers of geologic literature use compression indiscriminately for both stress and strain, as in the context of compressional structures. Geologic structures are manifestations of strain; thus, in rock mechanics the convention is that tension and compression are terms that should be used in discussions of stress, whereas the corresponding strain terms are extension or elongation and contraction or shortening or even constriction.
- It has come to seem that a paper is not scientific unless it contains the two words **essentially** and **constrain**, preferably together in the construction essentially constrains. Both are perfectly good, although overused words, and they have their place in good writing. The English language is rich in other words, however, that may be used effectively to convey more explicit meaning, including generally, commonly, typically, nearly, almost, mainly, chiefly, partly, characteristically, usually, and largely. Writers may find that control, limit, restrict, bound, define, contain, characterize, and restrain and their related nouns are more meaningful than constrain and its related noun constraint.
- The sentence, "Evidence suggests that the Earth is flat," carries no information. What kind of evidence? Geologic? Geodetic? Compelling? Permissive? Pseudoscientific? Circumstantial? Specious? Just as vague for the same reason is the statement that "Data suggest that the earth is flat." Imaginary data?
- At the same time, data, strata, phenomena, and spectra are plural.
- We prefer to avoid using evidence as a verb, as for example, in the sentence "The presence of snakes in the grass was evidenced by their rattling sounds." We also maintain that the verb **postulate** is more euphonious than **hypothesize**.
- Strictly speaking, the whole comprises its parts, but our dictionaries say that the jury is almost evenly divided on its formal use and that **comprise** may be used as a synonym for consists of, is composed of, encompasses and so on; but **comprised of** is wrong.
- Our dictionaries also say that **occur** and **occurrence** are better used when happen and happening, respectively, can be substituted. Rather than the rocks occur in the cliff, it is better to say the rocks are present in the cliff or the rocks are exposed in the cliff. We expect that paleontologists will complain, however, because the occurrence of fossils is deeply rooted in the literature.
- The word **portion** is preferred when the word share can be substituted for it. Otherwise use **part**, which is no less a profound or erudite word.
- **Suggest** is a frequently overused weasel word in manuscripts. Many writers build a house of cards with **suggest** when stronger words such as indicate, imply, show, and prove may be more appropriate. Authors commonly write Joe Schmoh suggested that the Earth is flat, when in fact Schmoh may have proposed, concluded, indicated, maintained, asserted, inferred, implied, stated, believed, postulated, thought, guessed, or considered that the Earth is flat. Other weasel words and phrases include probably, appears to be, seems to be, may be, and could be. Their overuse should be avoided as much as possible.
- **Show** is being overused, however. The outcrop shows iron stains is better expressed, in our opinion, by the outcrop is iron stained or the outcrop has iron stains.
- The awkward use of the infinitive to be is surfacing in scientific writing with increasing frequency, such as in "Joe Schmoh thought the Earth to be flat," or "Joe Schmoh showed the rock to be lithified." It is more straightforward to write "Joe Schmoh thought that the Earth was flat and showed that the rocks are lithified." Here is another example of vagueness: "Statistics reveal April's GNP to be lower than March's." Does that sentence mean that the April GNP is lower than March's or that it will be lower?
- Since is a time word; so are also occasional, while, and frequently. Occasional outcrops of obsidian were observed since the bulldozer passed through the hill. Were the outcrops there only on Tuesdays because the bulldozer passed through, or only on Tuesdays after the bulldozer passed through? Use whereas in place of while in those cases where time is not implied.
- We have yet to read an article that stated the velocity of a rapid facies change. We have observed and mapped abrupt facies changes, however.
- Sediments are rock-disintegration products, such as sand, silt, and gravel. We would like to be invited to go on a field trip to see Ordovician sediments. Although we realize that sediments were deposited in basins of Ordovician age, we'll bet 30 cents that they are sedimentary rocks today and should be so called.
- Because lines trend and plunge and surfaces strike and dip, it is incorrect to say northwest-trending faults whereas northwest striking faults is correct. Authors may object that the traces of faults on maps are lines, but because a map almost always represents the horizontal plane, the intersection of a fault surface with the map surface is a unique line: the strike.
- It is also increasingly common to see authors put together a string of nouns to construct what they believe is a more educated or profound name for a very simple thing, such as "a single component rock sample acquisition system" (five nouns).
- We believe that it is preferable to write "margins of the plateau" instead of the "plateau's margin," because inanimate object cannot possess.
- Can anyone tell us what **packages** or **packets** are in the geologic context and where either is formally defined? We can cite several different sizes and shapes of things that package has been used to describe, including an individual stratum, several strata, a sequence of stratified rocks, an areally restricted outcrop of a distinctive rock or group of rocks, fault blocks—even tectonic terranes. The definition that makes the most sense to us is that package and packet are the latest geologic buzzwords. So is **scenario** which ought to be replaced with **hypothesis**.

The *Chicago Manual of Style* is a standard for scientific journals and is probably the best reference for these matters. We have learned that a new edition of *Suggestions to Authors of Reports of the U.S. Geological Survey*, a long-time standard for authors, may be printed soon. Melba Murray has just published a second edition of her excellent book, *Engineered Report Writing*. We also recommend Robert L. Bates' new little book, *Writing in Earth Science*, published by the AGI (\$3.95); it covers 95 percent of the housekeeping problems we encounter.